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Radiological Emergency Response Assistance and Resources

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Science in the National Interest

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Department of Energy
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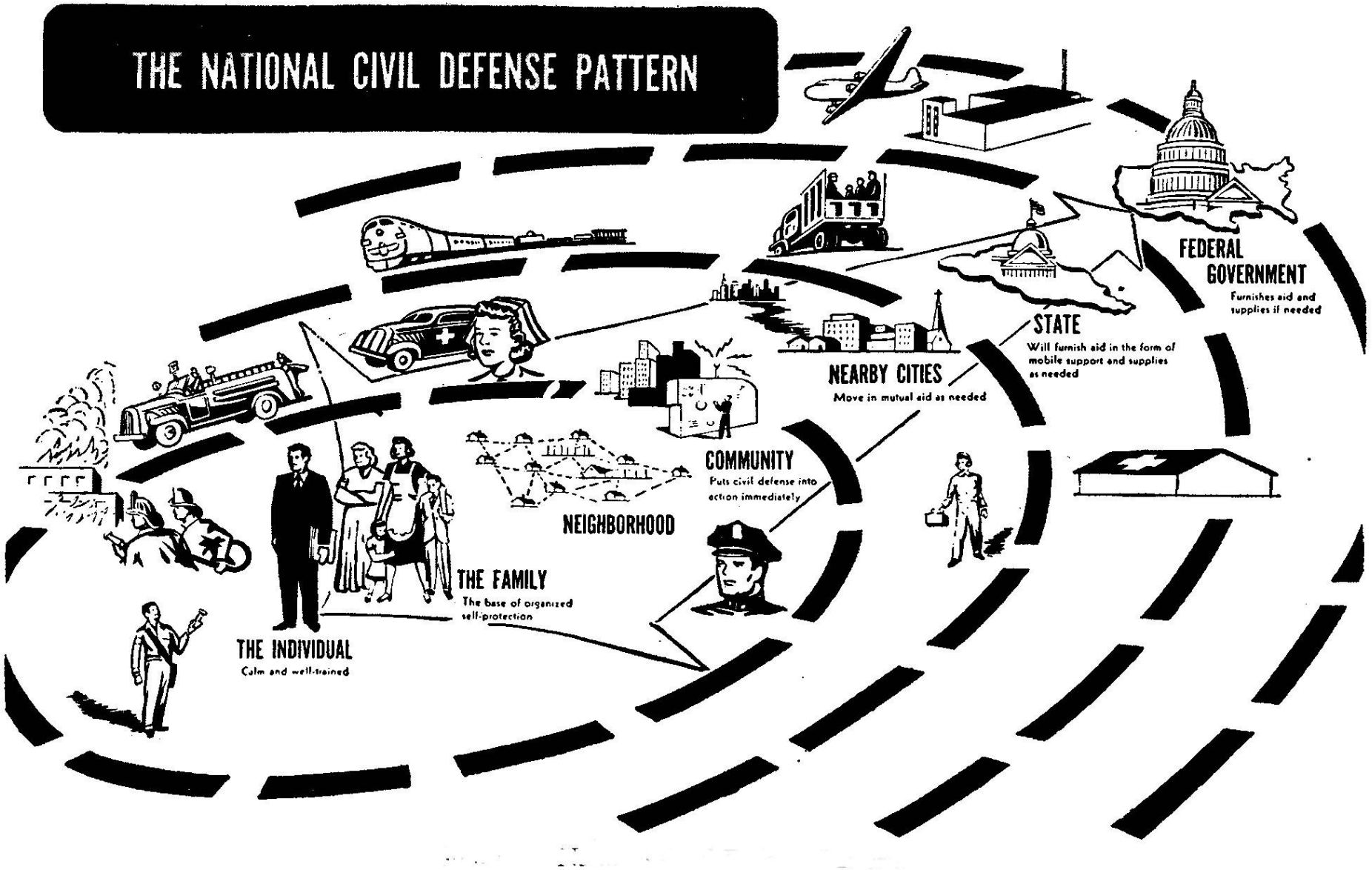
The Realities of Disaster Management

The "Rules"

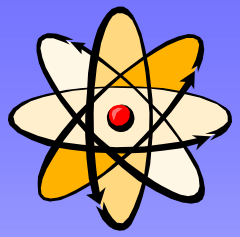
- **Self-organizing efforts** by citizens, responders in the field, and other emergency organizations at the state, federal, non-profit and private sector levels will create unexpected communications paths and response structures.
- **Information** about the entire emergency disaster response structure or even parts of response (including how it extends across the community, city, operational area, the status and organization of the regional response, state response, and federal response) **is incomplete**.
- Existing **strains** between organizations may be exacerbated.
- Because of initial starting conditions, and varying resource demands, critical activity rates within and between organizations **drive** each other and the overall response in **unpredictable and complex** ways.

From *What Disaster Response Management Can Learn From Chaos Theory (http://www.library.ca.gov/CRB/96/05/over_2.html#Heading5)*

Old Civil Defense Pattern Still Valid Today



“Instant Service”



Pre-Event

The “Golden” Minute

The “Golden” Hour

The First Day

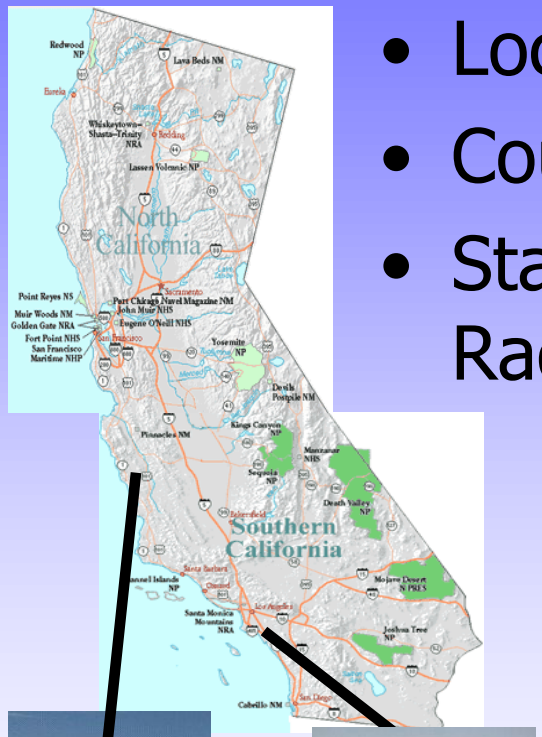
Day 14

The Citizen

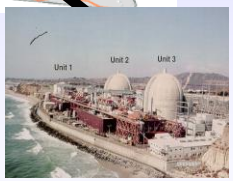
“Official” Responders

Relief (Volunteer) and Support Organizations

State of California Radiological Emergency Assistance Resources



Diablo Canyon (DCPP)



San Onofre (SONGS)

- Local Fire and Hazmat Responders
- County Department of Health Services
- State Department of Health Services, Radiologic Health Branch
- Office of Emergency Services
- National Guard Civil Support Teams
- Federal Assistance Also Available:
  - Local DOE Radiological Assistance Program (RAP) Teams
  - Other National Assistance (FEMA)

Standardized Emergency Management System (SEMS)

The State of California has developed SEMS for responding to and managing multi-agency and/or multi-jurisdictional emergencies and disasters, including terrorist incidents, within California.

The use of SEMS is required of any local agency seeking reimbursement for certain disaster-related personnel response costs under disaster assistance programs. All state agencies must use SEMS.

How to Initiate SEMS

- Follow your normal notification (and event escalation) protocols

- Notify the OES Warning Center,
  (800) 852-7550 or (916) 845-8911

- Suspected Terrorism Response Actions Fall Under the FBI Jurisdiction.

Local FBI Offices	
Sacramento	**(916) 481-9110**
San Francisco	**(415) 553-7400**
Los Angeles	**(310) 477-6565**
San Diego	**(858) 565-1255**

California Office of Emergency Services

Under the authority of the Emergency Services Act and other legislation, OES mitigates, plans and prepares for, responds to, and aids in recovery from the effects of emergencies that threaten lives, property, and the environment.

National Guard Civil Support Teams

95th Weapons of Mass Destruction Civil Support Team
Hayward, California

Assess

- Damage to Infrastructure
- Damage to Populace
- ID Chemical Hazard
- ID Biological Hazard
- ID Radiological Hazard

Advise

- Vulnerabilities
- Anti-terrorism Actions
- Response & Recovery
- Emergency Preparation
- Safeguard the Populace
- Follow-on Support

Facilitate

- Situational Understanding
- Preparatory Activities
- RFA Development
- Communication Support
- Analytical Support
- Follow-on Support

Emergency Radiological Response Assistance and Training Available from the Department of Energy

The Department of Energy

- Facilities throughout the US with a large staff experienced with radioactive material and emergency response.
- Experts in nuclear weapon systems, radiation safety, threat assessment, detector technology, and smuggling intervention.
- Responsible for coordinating the monitoring and assessment of a national radiological emergency.
- Partners in emergency response.

Facilities throughout the U.S.

FEMA Regions

National Nuclear Security Administration

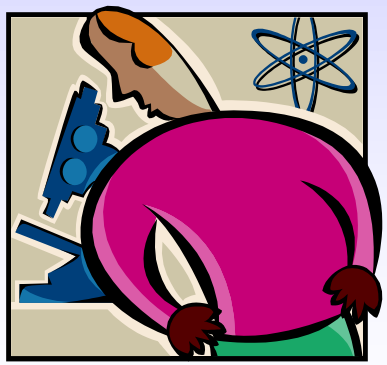
Nuclear Emergency Support Team (NEST)
Detecting Lost (or Hidden) Sources of Radiation

- Large, sensitive radiation detectors that can be:
  - mounted in Helicopters
  - mounted in aircraft
  - mounted in Vehicles, or
  - Hand carried

- Finding unlicensed radioactive materials as it enters or moves within the United States.

Nuclear Emergency Support Team (NEST)
Helping to Identify Unknown Radioactive Material

- NNSA has advanced field instrumentation capable of identifying the exact isotope of radioactive material.
- "Nuclear Triage" Concept, where instrument readings taken in the field can be remotely reviewed by an expert in NNSA.
- Once identified, NNSA can offer additional advice or assistance to properly manage the material.

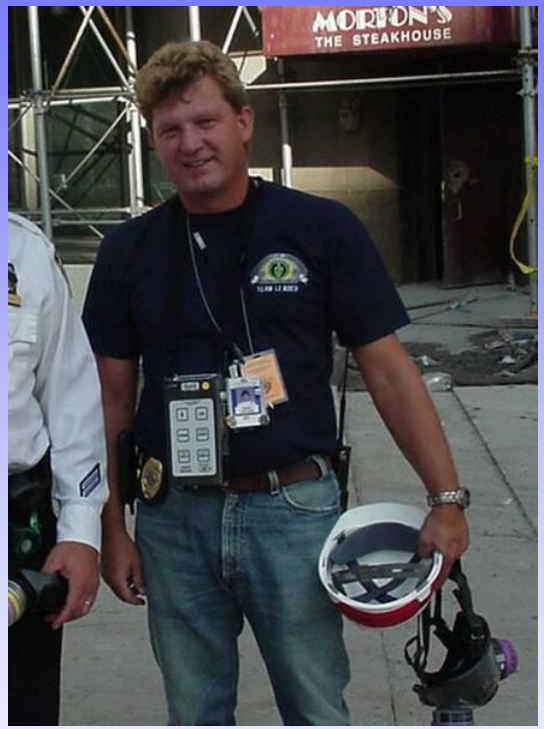


If Radioactive Material is spread through accident or intent, NNSA can help

- **Radiological Assistance Program (RAP)**
  Regional emergency responders who are experts in radiological issues and response. These initial responders can call on the assets below as needed.
- **Radiation Emergency Assistance Center/Training Site (REAC/TS)**
  Provides medical advice, specialized training, and the unique capability of on-site assistance for the treatment of all types of radiation exposure accidents.
- **National Atmospheric Release Advisory Center (NARAC)**
  Provides atmospheric dispersion modeling to generate potential population exposures and PAG effected areas.
- **Aerial Measurement System (AMS)**
  Sensitive detectors mounted on airframes to accurately measure contamination.
- **Accident Response Group (ARG)**
  Provides safe recovery and transport for accidents involving nuclear weapons.
- **Federal Radiological Monitoring and Assessment Center (FRMAC)**
  Helps coordinate monitoring and assessment data with other federal agencies.

Radiological Assistance Program (RAP)

- Regional, On-Call Responders
- Specialized Equipment
- All Volunteers with Extensive Radiological Experience
- Outreach to help 1st Responder Preparation
- Tailored Response that provides access to **all of DOE assets.**



REAC/TS MISSION STATEMENT

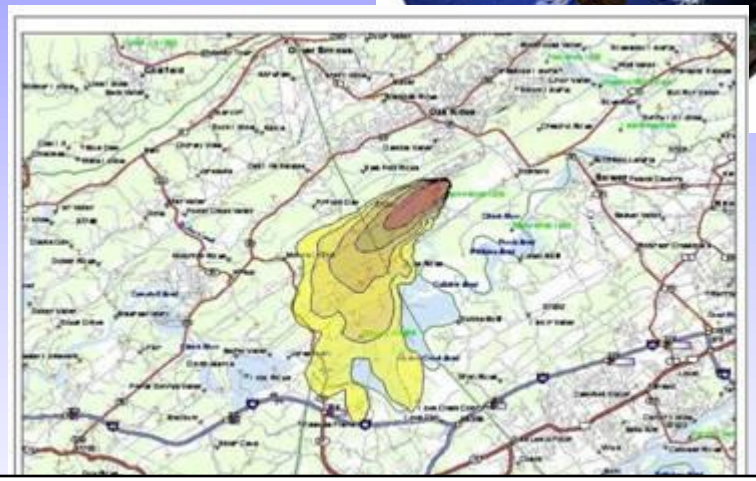
- The Radiation Emergency Assistance Center/Training Site (REAC/TS) provides:
  - medical advice
  - specialized training, and
  - on-site assistance for the treatment of all types of radiation exposure accidents.
- 24-hour response center to provide direct support, including deployable equipment and personnel trained and experienced in the treatment of radiation exposure.
- REAC/TS also manages the national use of drugs used to treat internally deposited radioactive material.
  - *In continuous operation since June 1976*

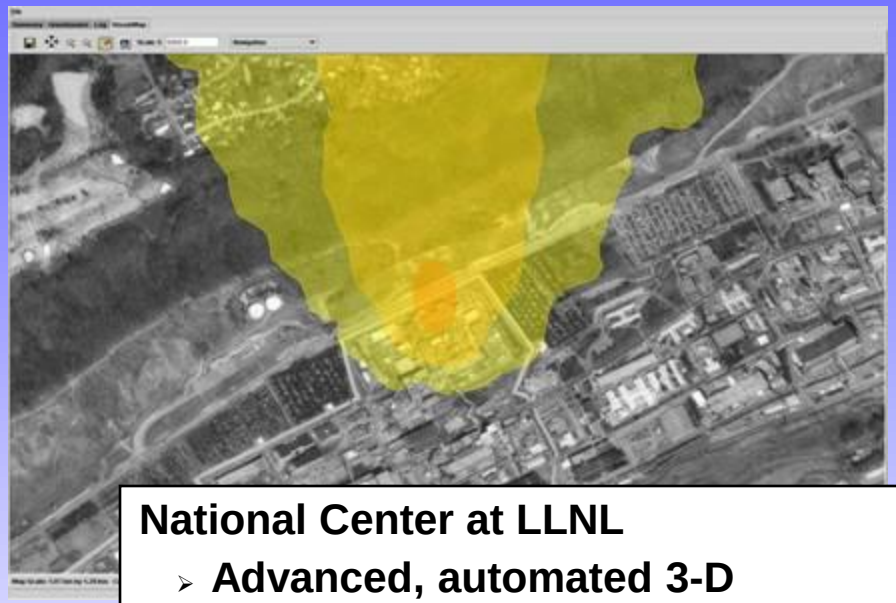
National Atmospheric Release Advisory Center (NARAC)

Real-time advisories for hazardous atmospheric releases

World-wide data coverage

- Real-time weather data
- Terrain & land surface
- Maps





National Center at LLNL

- Advanced, automated 3-D modeling system
- Scientific and technical staff provides training and assistance 24 hrs x 7 days

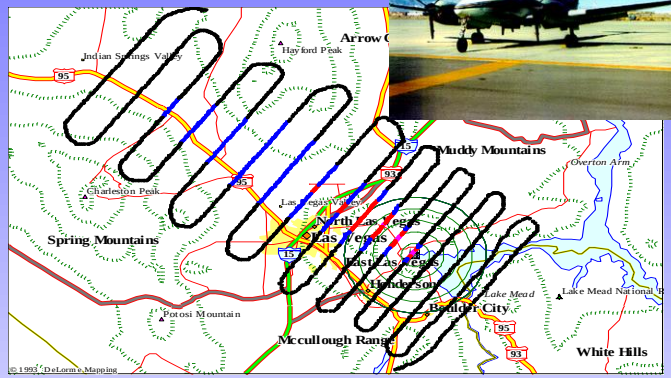
Real-time Hazard Advisories

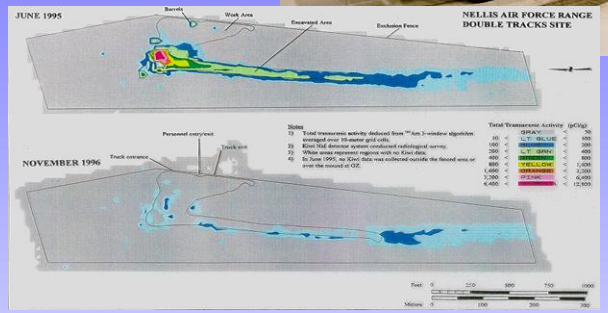
- Nuclear, radiological, chemical, biological & natural releases
- National center predictions available within minutes using Internet/Web tools
- Deployed modeling tools on end user's computer
- Geographical information displays
- Affected population, health risks, recommended actions

Aerial Measurement System

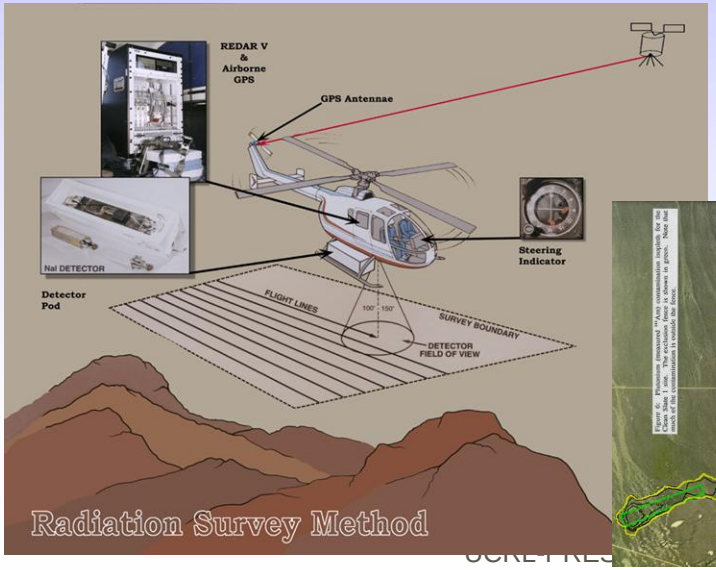
AMS

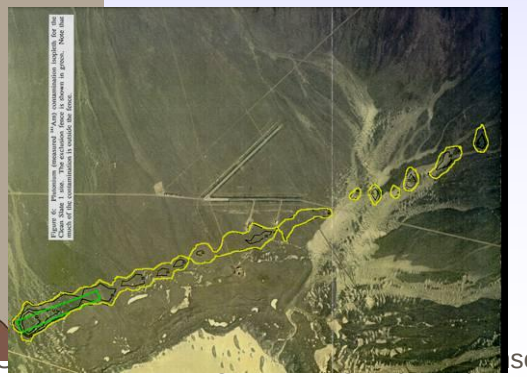
Quick-Look Radiological Mapping

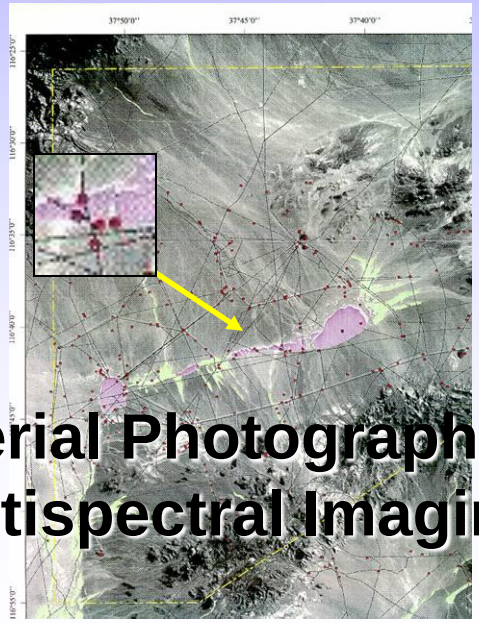




Detailed Radiological Mapping







Aerial Photography Multispectral Imaging

Accident Response Group (ARG)

- Collaborative effort between the **Department of Energy** and the **Department of Defense** to ensure the safety of America's Nuclear Weapon Stockpile.
- In the event of an accident involving a nuclear weapon, these agencies work together to ensure the **safety** and **security** of weapon recovery, transportation, and disposition operations.

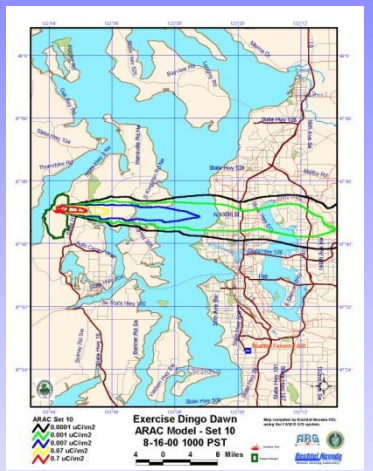
Liquid abrasive cutter. Cutting a spar from a cruise missile

Fiberscope system used to examine internal condition of a warhead electrical system

Federal Radiological Monitoring and Assessment Center (FRMAC)

Consequence Management

- FRMAC provides the infrastructure for interagency cooperation
- Measurement database and Graphical Information System helps incorporate and display information quickly.
- Specialists provide expert radiological health assessments.
- Additional capabilities for Extended hotline and personnel monitoring support.
- Mobile radiological laboratories quickly evaluate samples.



TRAINING and OUTREACH

- DOE has a variety of regional and national training and outreach efforts, including:
  - Transportation Emergency Preparedness Program (TEPP)
  - Instrumentation workshops
  - Drill & exercise participation
  - Counter terrorist and Emergency Operations Training Academies
  - Specialized training may be available on request

For more information on NNSA training and outreach efforts in your area, contact your local Regional Response Coordinator. Contact info at the end of the presentation

Emergency Operations Training Academy

Mission:
Ensure the **effective and efficient** training of emergency operations personnel throughout the Department of Energy who are, or may become involved in the **Planning, Preparedness**, and **Response** of **vital national resources**.

For more information or a schedule of courses or available distributed computer based training materials , Visit www.eota.doe.gov or call (505) 845-5170 ext.172

Hospital

File Help Terrorism WMD Prop. Treat. Proc. Skills Protect. Proc. WMD Lib. Scenario

TREATMENT PROCEDURES

DECONTAMINATION PROCESS

Decontamination Deltas

- *The Large Number of Victims* is the first major difference between standard HAZMAT and WMD incidents. Responders may be required to control, triage, decontaminate, and track hundreds, if not thousands, of people at the site.
- *Scene Control* may involve a larger area, a mass casualty situation with numerous responders who all want to "help," and a huge press corps seeking information about the

PREVIOUS CONTINUE MENU EXIT

(DOJ) TRAINING AT NEVADA TEST SITE COUNTER TERRORISM OPERATIONS SUPPORT

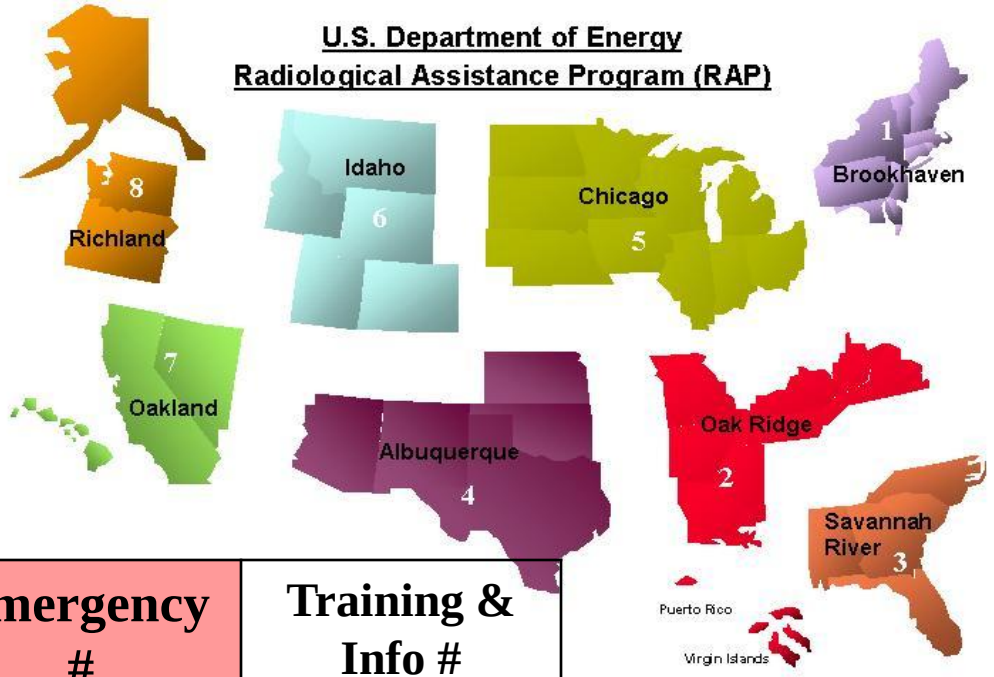
- **Conducts five weapons of mass destruction (WMD) training courses for dept of justice office of domestic preparedness**
  - **Instruction and hands-on drills train-the-trainer course with classroom**
  - **Hazardous material (hazmat) technician**
  - **WMD radiological/nuclear responder course**
  - **Weapons of mass destruction (WMD) practical exercise course**
  - **Weapons of mass destruction (WMD) exercise development course**
- **Conducts training for national guard civil support teams**

CONTACT JAMES SUDDERTH AT (702) 295-2559 FOR MORE INFORMATION

Conclusion:
Department Of Energy Assistance

- DOE has several emergency response assets that can help others manage radiological incidences.
- Training and outreach efforts can better prepare responders for radiological accidents or events.
- DOE facilities are distributed throughout the US and provide local response capability.

DOE Emergency Assistance or Training Info, Contact:



Region	NNSA Regional Response Coordinator	Emergency #	Training & Info #
1	Steve Centore	(631) 344-2200	(631) 344-7309
2	Steve M. Johnson	(865) 576-1005	(865) 576-9740
3	Christina T. Edwards	(803) 725-3333	(803) 952-6613
4	James E. Straka	(505) 845-4667	(505) 845-5581
5	Christine Van Horn	(630) 252-5731	(630) 252-2498
6	Steven A. Morreale	(208) 526-1515	(208) 526-0199
7	Mike Cornell	(925) 422-8951	(925) 422-0138
8	Kathy Beecher	(509) 373-3800	(509) 376-8519
HQ	Duty Officer, Washington, DC	(202) 586-8100	(202) 586-3201

References (1 of 2)

RadEFX(sm) Ionizing Radiation Health Effects Forum
Copyright © 1994-1997 Baylor College of Medicine, All rights reserved.
http://radefx.bcm.tmc.edu/ionizing/subject/risk/acute.htm

Disaster Preparedness for Radiology Professionals
Response to Radiological Terrorism
A Primer for Radiologists, Radiation Oncologists and Medical Physicists
©2002 American College of Radiology
http://www.acr.org/departments/educ/disaster_prep/disaster-planning.pdf

Uranium Information Centre
Melbourne, Australia
http://www.uic.com.au/index.htm

Transportation Emergency Preparedness Program (TEPP)
http://www.em.doe.gov/otem/program.html

Large Sources of Radioactive Material, SNL 02-024
Bill Rhodes, Fred Harper, Marvin Larsen

References

A Practical Guide To Incident Response, ARSCE 2002; WPM-A.4
James G. Barnes, CHP Rocketdyne/Boeing

Civil Support Team in Action
(http://call.army.mil/products/trngqtr/tq3-02/borel.htm)
Major Adrian T. Bogart III, National Guard Bureau's Civil Support Office and Major William L. "Lynn" Borel, Jr., ARNG Liaison

What Disaster Response Management Can Learn From Chaos Theory
(http://www.library.ca.gov/CRB/96/05/over_2.html#Heading5)

Various informal OES presentations supplied by
Bill Potter, Coordinator (Radiological), Governor's Office of Emergency Services, Radiological Preparedness Unit

The Department of Energy's "Partners in Emergency Response" Publication